What is claimed is:

1. A method for adapting a general purpose query protocol for use by an industrial control system, the industrial control system including a controller for providing control, via a network for communication according to a model compatible with the Open Systems Interconnection (OSI) seven-layer model, over an industrial process through at least one control element and at least one monitoring element, each coupled to the network via a network I/O device, the controller for performing communication with the network I/O devices according to the general purpose query protocol, the method comprising the step of:

a) making a permanent-type connection to the network I/O device for the control element or for the monitoring element based on an analysis of communication transactions between the controller and the control element or the monitoring element;

thereby specializing the general purpose query protocol, which would ordinarily be used in computer-to-computer communications for making ad hoc queries of an external device, to use by the industrial control system in performing frequent communication of control and monitoring information between the controller and the control element or the monitoring element of the industrial control system.

2. The method as claimed in claim 1, wherein the permanent-type connection is a connection, at the transport layer of the network communication model, that is left open for later use after an earlier use.

3. The method as claimed in claim 2, further comprising the step of:

a) making available use of ~~a protocol~~ in which a single command from the controller performs both a read register and a write register instruction.

4. The method as claimed in claim 3, wherein the protocol is compatible with the open MODBUS/TCP protocol.

5. The method as claimed in claim 4, further comprising the steps of:

a) rate tuning the controller so as to adjust how often to communicate with the control element or the monitoring element; and

b) duration tuning the controller so as to adjust how long to wait for the control element or the monitoring element to respond to a query.

6. The method as claimed in claim 5, wherein the network is an Ethernet-type network.

7. The method as claimed in claim 6, wherein the controller is a programmable logic controller (PLC).